Omega-3 supplements for dry eye

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Clinical question

Does oral omega-3 supplementation improve symptoms of dry eye disease?

Bottom line

The evidence for omega-3 is inconsistent. The best quality RCT found omega-3 supplementation does not improve dry eye symptoms or function. Smaller RCTs suggest statistically significant benefits in symptom scores that are not always clinically relevant. At best, omega-3 improves symptoms about 3.9 points more than placebo on an 18-point symptom scale.

Evidence

Eleven RCTs of omega-3 (with both eicosapentaenoic acid [EPA] and docosahexaenoic acid [DHA]) reported patient-oriented outcomes.

- The best quality RCT examined 535 patients (mean age 58) with moderate symptoms of dry eye disease taking omega-3 (2000 mg and 1000 mg of EPA and DHA per day, respectively) versus placebo. At 1 year there was no difference in symptom scores, patient function, objective measures, or adverse events.[1]
- An RCT studied 105 patients (mean age 57) with moderate meibomian gland dysfunction taking omega-3 (1680 mg and 560 mg of EPA and DHA per day, respectively) versus placebo. At 3 months there was statistically significant improvement on the 100-point Ocular Surface Disease Index[2]:
  - -There was an approximate 17-point reduction with omega-3 versus about 5 with placebo. The difference was likely clinically relevant (minimal clinically important difference was 7 to 10) but the baseline score was higher in the intervention group.[3]
  - -A limitation was that the study was industry funded.
- In 4 RCTs of 256 to 518 patients, taking omega-3 ranging from 325 to 720 mg of EPA and 175 to 480 mg of DHA, outcomes were examined at 1.5 to 6 months[4-7]:
  - -There was a statistically significant improvement of 2.0 to 4.6 points versus 0.2 to 0.7 for placebo on an 18-point symptom scale; this might be clinically relevant.
  - -These articles were written by the same lead author and they used a non-standard scale created by the authors that assessed symptoms but not function.
- Smaller RCTs report statistically but not clinically significant improvements with omega-3.[8,9]

Context

- Guidelines suggest artificial tear lubricants (about $11 per 30-day supply depending on usage), hot compresses, and environmental changes, such as increasing humidity, for management of dry eyes. Omega-3 was suggested but dosing was not discussed.[10]
- Cost of omega-3 supplementation is about $60 per 90-day supply (based on a daily dose of 1800 mg and 900 mg of EPA and DHA, respectively).

Implementation

Prevalence of diagnosed dry eye is about 7% in the United States and has been reported to be as high as about 19% in patients older than 75.[11] The cause of dry eye disease is often multifactorial; therefore, questionnaires such as the Ocular Surface Disease Index can help clinicians determine triggers and severity of the symptoms.[10] A systematic review of 43 RCTs (3496 patients with dry eye) concluded that over-the-counter artificial tears are safe and all options are similarly effective (low level evidence).[12]

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Competing interests
None declared

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